

COVID-19 Treatment and Management

Should post-exposure prophylaxis be used for people who may have been exposed to a person with COVID-19?

There is currently no FDA-approved post-exposure prophylaxis for people who may have been exposed to COVID-19. For information about registered clinical trials of investigational therapeutics for pre or post exposure prophylaxis of SARS-CoV-2 infection, visit [ClinicalTrials.gov](https://clinicaltrials.gov).

For more information on movement restrictions, monitoring for symptoms, and evaluation after possible exposure to COVID-19, see [Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 \(COVID-19\) Exposure in Travel-associated or Community Settings](#) and [Interim U.S Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease 2019 \(COVID-19\)](#).

The National Institutes of Health recently published guidelines on prophylaxis use, testing, and management of COVID-19 patients. For more information, please visit: [National Institutes of Health: Coronavirus Disease 2019 \(COVID-19\) Treatment Guidelines](#).

How are COVID-19 patients treated?

Not all patients with COVID-19 will require medical supportive care. Clinical management for hospitalized patients with COVID-19 is focused on supportive care for complications, including supplemental oxygen and advanced organ support for respiratory failure, septic shock, and multi-organ failure. Empiric testing and treatment for other viral or bacterial etiologies may be warranted.

Corticosteroids are *not* routinely recommended for treatment of viral pneumonia or ARDS, due to the potential for prolonging viral replication, as has been observed with MERS coronavirus and influenza. Corticosteroids should be avoided unless they are indicated for another reason (e.g., COPD exacerbation or refractory septic shock following the [Surviving Sepsis Campaign Guidelines](#)).

For information on investigational therapies, see [Therapeutic Options for Patients with COVID-19](#).

Do patients with confirmed or suspected COVID-19 need to be admitted to the hospital?

Not all patients with COVID-19 require hospital admission. Patients whose clinical presentation warrants in-patient clinical management for supportive medical care should be admitted to the hospital under appropriate isolation precautions.

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Some patients with initial mild clinical presentation may worsen in the second week of illness. The decision to monitor these patients in the inpatient or outpatient setting should be made on a case-by-case basis. This decision will depend not only on the clinical presentation, but also on the patient's ability to engage in self-monitoring, the feasibility of safe isolation at home, and the risk of transmission in the patient's home environment. For more information, see [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in a Healthcare Setting](#) and [Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 \(COVID-19\)](#).

What do we know about detection of SARS-CoV-2 RNA after clinical recovery from COVID-19?

Many recovered persons do not have detectable SARS-CoV-2 RNA in upper respiratory tract specimens. In others, viral RNA can be persistently detected by RT-PCR in respiratory tract samples after clinical recovery. In some persons, after testing negative by RT-PCR in two consecutive samples, later samples can test positive again. Whether persistent or recurrent, these repeated detections of viral RNA consistently are associated with higher cycle threshold (Ct) values (i.e., fewer RNA copies) than were found in earlier RT-PCR results in samples collected shortly or and during clinical illness. Studies that have looked at how long SARS-CoV-2 RNA can be detected in adults have demonstrated that in some persons it can be detected for weeks.

Are clinically recovered persons infectious to others if they test persistently or recurrently positive for SARS-CoV-2 RNA?

Whether the presence of detectable but low concentrations of viral RNA after clinical recovery represents the presence of potentially infectious virus is unknown. Based on experience with other viruses, it is unlikely that such persons pose an infectious risk to others. However, whether this is true for SARS-CoV-2 infection has not been definitively established.

Typically, after the onset of illness, the detectable viral burden declines. After a week or more, anti-SARS-CoV-2 immunoglobulin becomes detectable and antibody titers rise. Some of these antibodies may prevent the virus from infecting cells in cell culture. The decline in viral burden is associated with decreased ability to isolate live virus. Efforts to isolate live virus from upper respiratory tract specimens have been unsuccessful when specimens are collected more than 10 days after illness onset.

Persons who have tested persistently or recurrently positive for SARS-CoV-2 RNA have shown stable or improving signs of illness. When viral isolation in tissue culture has been attempted in such persons in South Korea and the United States, live virus

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has not been isolated. In addition, there is no evidence that clinically recovered persons with persistent or recurrent detection of viral RNA have transmitted COVID-19 to others.

Despite encouraging observations to date, it's not possible to conclude that persons with persistent or recurrent detection of SARS-CoV-2 RNA are no longer infectious. There is no firm evidence yet that the antibodies that develop in response to infection are protective. If these antibodies are protective, it's not known what antibody titers are associated with protection from reinfection.

Based on these data and experience with other viral infections, most persons recovered from COVID-19 who test persistently or recurrently positive by RT-PCR are likely no longer infectious. Additionally, the magnitude and persistence of the immune response following recovery may vary among individuals, with factors such as age potentially influencing protection. Based on limited available data, determinations must be made on a case-by-case basis as to whether recovered persons with persistently detectable SARS-CoV-2 RNA are potentially infectious to others and should continue to be in home isolation and excluded from work, school, or other group settings. Such determinations are typically made in consultation with infectious diseases specialists and public health officials, after review of available information (e.g., medical history, time from initial positive test, RT-PCR Ct values, and presence of COVID-19 signs or symptoms).

Can cycle threshold (Ct) values be used to assess when a person is no longer infectious?

No. Although attempts to culture virus from upper respiratory specimens have been largely unsuccessful when Ct values are in high but detectable ranges, Ct values are not a measure of viral burden, are not standardized by RT-PCR platform, and have not been approved by FDA for use in clinical management. CDC does not endorse or recommend use of Ct values to assess when a person is no longer infectious; however, serial Ct values may be useful in the context of the entire body of information available when assessing recovery and resolution of infection.

What further evidence is needed to be reassured that persistent or recurrent shedding of SARS-CoV-2 RNA after recovery does not represent the presence of infectious virus?

Prospectively collecting serial respiratory samples and attempting to isolate live virus in tissue culture from multiple persons testing positive by RT-PCR following illness recovery is generally required. If repeated attempts to recover replication-competent virus in culture from such serial samples are unsuccessful that is considered sufficient evidence that infectious virus is absent, and that persons continuing to test positive do not pose an infectious risk to other people

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Can viral culture be used to demonstrate that a person who had persistently or recurrently detectable viral RNA is not infectious to others?

Yes. However, viral culture is not widely performed for SARS-CoV-2. It must be conducted in Biosafety Level 3 (BSL-3) laboratories using BSL-3 practices by experienced virologists and results can take a week or more. Therefore, while persons whose specimens do not yield live virus are considered no longer infectious, the complexity of such testing and the time required to complete it mean that it is unlikely to be useful to guide management of infected persons.

A person who previously tested positive by RT-PCR for SARS-CoV-2 and clinically recovered from COVID-19 is later tested again, for example as part of a contact tracing investigation. If that person again tests positive by RT-PCR, should they be managed as potentially infectious to others, and isolated again for COVID-19?

The person should be managed as potentially infectious and isolated. When a positive test occurs less than about 6 weeks after the person met [criteria for discontinuation of isolation](#), it can be difficult to determine if the positive test represents a new infection or a persistently positive test associated with the previous infection. If the positive test occurs more than 6-8 weeks after the person has completed their most recent isolation, clinicians and public health authorities should consider the possibility of reinfection. Ultimately, the determination of whether a patient with a subsequently positive test is contagious to others should be made on a case-by-case basis, in consultation with infectious diseases specialists and public health authorities, after review of available information (e.g., medical history, time from initial positive test, RT-PCR Ct values, and presence of COVID-19 signs or symptoms). Persons who are determined to be potentially infectious should undergo evaluation and remain isolated until they again meet criteria for discontinuation of isolation or of [transmission-based precautions](#), depending on their circumstances.

If a previously infected person has clinically recovered but later develops symptoms consistent with COVID-19, should the person be isolated again and tested for SARS-CoV-2?

Yes, they should be isolated and retested. Persons who test positive for SARS-CoV-2 by RT-PCR come out of isolation after meeting criteria for the [symptom-based or test-based strategy](#). We do not know the degree to which previous COVID-19 illness protects against a subsequent SARS-CoV-2 infection or for how long persons are protected. Currently, serologic testing cannot be used to determine if this person may be reinfectd. A positive serologic test may be evidence of the prior infection, but it remains unknown to what degree persons with detectable anti-SARS-CoV-2

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antibodies are immune to reinfection. Contact tracing for the second period of symptoms (new case investigation) may be warranted.

If an infected person has clinically recovered and then later is identified as a contact of a new case, do they need to be quarantined?

Yes, they should follow quarantine recommendations for contacts. We do not know to what degree or duration persons are protected against reinfection with SARS-CoV-2 following recovery from COVID illness. A positive serologic test may be evidence of prior infection, but it remains unknown whether persons with detectable anti-SARS-CoV-2 antibodies are immune to reinfection.

If an infected person has clinically recovered using the symptom-based strategy, do they need a test of cure?

No. The [symptom-based strategy](#) is intended to replace the need for repeated testing.

If an infected person has clinically recovered, should the person continue to wear a cloth face covering in public?

Yes. It is recommended that almost all persons wear [cloth face coverings](#) in public. The primary purpose of cloth face coverings is to limit transmission of SARS-CoV-2 from infected persons who may be infectious but do not have clinical symptoms of illness or may have early or mild symptoms that they do not recognize. Fabric face coverings may also offer the wearer some protection against re-exposure to SARS-CoV-2, provide reassurance to others in public settings, and act as a reminder of the need to maintain social distancing. However, cloth face coverings are not personal protective equipment (PPE) and should not be used instead of a respirator or a facemask to protect a healthcare worker.

- Cloth face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the mask without assistance.

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